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DECENTRALIZATION ANALYSIS BASED ON BLOCK-CHAIN TECHNOLOGY RELATED PROJECTS

Research-in-Progress

Track 21

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Abstract

With the appearance of Bitcoin, the blockchain technology behind it has attracted attention from banks, companies, and entrepreneurs from different fields. Many new blockchain technology related projects and companies are started in financial service and others , such as data storage, supply chain, internet of things (IoT) and copyright protection as the valuable features including decentralization, transparency, security, and immutability. The work of blockchain technology can be used to reduce the costs associated with making decision and improve the efficiency of implementation by means of decentralized autonomous organizations (DAOs) which are the products of decentralization management. This paper is to analyze the pros and cons of decentralization management based on blockchain technology with an empirical study of blockchain projects and companies in different industries for a better understanding of decentralization management, and find better ways of decentralization management in blockchain projects and managing decentralized autonomous organizations.

Keywords: blockchain technology, decentralization management, decentralized autonomous organizations (DAOs)

1 Introduction

From the contention between Confucianism and Legalism in ancient China to the evolution of ideas in three law schools in the West, the law and morality changed with the development of society, frequently separating and integrating in turn after long intervals. In Chinese there is a sentence "分久必合，合久必分" which means this world will separate after long time united. When it goes to management, it is the conflict and harmony of centralization and decentralization. Here we have to make it clear that both have their strength as well as weakness. The balance of both existence and make the advantages from each to improve management is the goal rather than neglect one and only use the other.

The strength of centralization are explicit unification of justification and management and high efficiency in work with the best utilization of all sorts of resources while the weakness are the complicated procedures in management with influence of subjective and the lacking of restriction in power. The decentralization can make up the weaknesses in centralization. The wars in history are the ways where human beings are exploring democracy and freedom against autocracy and dictatorship. Autocracy is a symbol of centralization beneficial to social development at beginning while its problems and harms are gradually obvious and over its advantages. The decentralization is the need of age and history, and people are always on the way of exploration of its pervasive application. As the limitation from social system and technology, decentralization is hard to be realized in economy in ancient time. Nevertheless, the situation can be changed with the appearance of blockchain technology which has brought the world a surprise in many industries, changes for people's future life.

This paper is going to see the decentralization in history and then focus on the application of decentralization with assistance of blockchain technology in finance and some other industries. Based on the analysis of some blockchain projects, decentralization management can be understood more clearly and we can have some inspiring ideas for further decentralization.

2 Decentralization in history

There is a saying about the earliest decentralization in the world, which appeared much earlier than the history of human being. That is the plants that have practice decentralization in survival. The living way of plants can be the source of decentralization and animals' living way is the beginning of centralization. In order to live in the poor environment and the competition with animals, plants gradually make themselves decentralized. It means every cell has the ability to continue live and grow, and even most parts are eaten by animals, the remained part can restore. There is not an organ like animal to control all the other body organs and actions, like the brain of an animal. The brain is the central of an animal giving orders to others body parts. Both plants and animals have cons and pros. With centralization, animals have quite rapid reaction to stimulations and dangers, and powerful strength in different body parts. The plants although have slow reactions to dangerous stimulation, they keep alive if there is a few parts are reminded.

In human beings' history, the exploration and practice of decentralization has a long and amazing story which include the political activities in the past also the management strategies in financial industry at present.

Take the Chinese history as example. Since the Qin dynasty established in 221 BC, China began the first feudal society until 1912 when the republic of China established. During this long history, royal family had the utmost power and governed China in every industries and aspects. At the first period of feudal society, economy had a very good development and society was very harmonious. While the life began to change and the conflict between the most population and governing group showed more and more seriously. The authority in royal family is the centralization of power and it has been the root of social conflict between landlord class and peasants. Suffering from the tough life, people began to have uprising and revolutions to get a better life. The war is the only and most effective way to have a comfortable life in that social and technology background. The same situation was happening in other western countries that people fight for a better life with royal family by means of war, such as the industrial revolution, the French revolution, and American revolutionary war. The centralization in that time has showed its most shortcomings and causes the revolt for a free and democratic society, which is the form of decentralization. And the countries that formed republic are beneficial from decentralization and people have more rights to decide their life and the production mode.

When the People's Republic was founded in 1949, China embraced the Marxist-Leninist style of socialism and the decentralization has a periodical victory. However, centralization still has its main position. During the reforms of the 1950s, rural China was divided into numerous "communes", big, collective farms owned by the state. People shared everything in the communes, from farm work to harvests and meals. Private property was abolished. All the woks, bowls and utensils were contributed to public kitchens. And the result of this very centralization is a tragedy which makes folks didn't have much incentive to work.

Chinese people again had to search for the methods from decentralization to make people regain work incentive and promote economy. Things began to change in 1978. The Third Plenary Session of the 11th Central Committee of the CPC was held; marking the beginning of China's reform and opening-up and decided the economy in China practices a basic economic system with public ownership as the mainstay and joint development of diverse forms of ownership, maintaining socialist principles of fairness and justice. In that time, decentralization won a better position that people can concern more about their personal life and decide what they want. Although the main resources and industries are still controlled by government, it is a big progress in economy in China and a benefit from decentralization.

In modern society, the conflict between centralization and decentralization has been embodied in more diverse forms, and the internet field and financial service are always the place never miss the hilarious struggling of these two things. In the book *Out of Control: The New Biology of Machines, Social Sys-*

tems, and the Economic World by Kevin Kelly (1994), the distributed internet and decentralization has been mentioned and given detailed explanation. There is no mandatory centralized control; intelligence is not organized in a centralized structure but much more like a bee-hive of small simple components, there is very strong connection with each other. Nowadays, blockchain technology has make those ideas come true with the peer-to-peer value transmission, distributed databases, distributed ledgers, smart contracts, and encrypted digital currencies. The core of blockchain technology is to have a distributed ledger in asymmetric internet world by means of encryption algorithm rather than the endorsement from government or big companies. It doesn't belong to any countries, organization or individual, and it has no central server, and every note is equal. Customers can make value transaction directly without the traditional agent companies or banks. In this situation, the value we lose during value transaction, such as the personal information, transaction data and commission, are saved by customers.

With the decentralization concept, blockchain technology has been super popular among finance and banking, supply chain, public health, resources, entertainment, digital asset, and legal service. It may become the new internet fundamental agreement which eliminate the cost from the third party and establish a freer, more transparent and reliable value internet. It is believed the changes brought by decentralization will be more than we can imagine today. But one point has to be made very clear, that is decentralization is a method and a process rather than the final result of management or an utmost goal. It is a tool in present period that existing with centralization to have a high efficiency and low cost in management and production, and to achieve the goal of disintermediation.

3 Decentralization and blockchain technology

The inspiration of decentralized autonomous organization (DAO) comes from the indirect coordination in certain species of animals (such as ants, termites and birds) (Marsh et al., 2007). The progress of decentralization is contributed by blockchain technology to a large extend. Now it is necessary to have a better understanding that what are these two objects and how dose blockchain assistant decentralization to achieve a higher level.

3.1 What is decentralization in the internet age?

The concept of decentralization is always used in cryptoeconomics and often viewed as the most important feature of blockchain technology. Actually, according to (Buterin, 2017), decentralization is divided into three levels: architectural decentralization, political decentralization, and logical decentralization. They focus respectively on the number of physical computers and notes in blockhain, numbers of individuals or organizations managing notes, and the numbers of interface and data structure like a single monolithic object, or an amorphous swarm. Buterin, (2017) also put forward three reasons for the application and development of decentralization. They are fault tolerance, attack resistance and collusion resistance.

Decentralization in internet system is a structure where every user becomes an internet note and connects to others equally. So there is no center as every note is the center. Decentralization is the most important and intrinsic characteristic of blockchain technology with distribute data storage and computing. All the notes in blockchain share the same right and responsibility to keep and protect the data. This is the tendency of the development of internet, which are also the changes in socialized relationship form and a new production process in information economy.

Compare to the internet in early period, the internet now is no longer controlled by several big websites or especially professional people; it is the platform where all the people can join to influence the result of productivity with relatively equal rights. It is allowed that everyone can show personal ideas or create original content.

With the diversification in the internet services and polycentricism in the governance of social relationship, the decentralized internet form becomes clear than ever and it is more possible to come true.

The internet service such as Wikipedia, Flickr, Blogger are providing services in the form of decentralization where anyone can participate in the update and share information. The content is more creative, beneficial and diverse. Now there are more decentralized internet services and websites such as Twitter, Facebook where more people can make contribution to diverse content with an easier way. It is useful to increase the enthusiasm of contribution and lower the threshold for production request. Every user can be an independent and small information supplier and maintainer, which make the internet decentralized and the content exuberant.

In the near future, with the assistance of blockchain technology and DAOs concept, decentralization in the internet age can reach a peak where the information is more transparent and more people can access to resources in education, finance, politics as well as many other fields which were controlled by a small number of people.

3.2 The blockchain technology

Blockchain is a decentralized and distributed digital ledger that is used to record all transactions across which are almost impossible to be manipulated (Amstrong, 2016). As the name implies, it is organized in a linear sequence of smaller encrypted datasets called 'blocks', which contain time stamped batches of transactions. Each block contains a reference to its precedent block and an answer to a complex mathematical puzzle, which serves to validate the transactions it contains (Pazaitis, Filippi, Kostakis, 2017). Blockchain follows the rules based on cryptographic algorithm rather than endorsement in traditional way. All the updated data needs the approval from blocks instead of the traditional endorsement from intermediary banks or government. Thus the benefits from blockchain include transparency, safety, and being trustless. According to Swan (2015), Blockchain 3.0 is blockchain applications beyond currency, finance, and markets—particularly in the areas of government, health, science, literacy, culture and art.

3.3 How dose blockchain technology make decentralization possible in the level of technology

The promotion of decentralization in many areas thanks to the blockchain technology with three main technologies in it: 1) cryptographic algorithm, 2) peer-to-peer communication technology, and 3) distributed consensus technology.

Encryption technology in blockchain includes asymmetric cryptographic algorithm and Hash algorithm. Peer-to-peer communication technology means that all the computing and storage space are relying on all participants in the network rather than some central servers. This technology has been applied in various data sharing software. Distributed consensus technology is the process in which a majority (or in some cases all) of network validators come to agreement on the state of a ledger. It is a set of rules and procedures that allows maintaining coherent set of facts between multiple participating nodes (Swanson, 2015). It mainly focuses on PoW (Proof of work), PoS (Proof of Stake) and the cobination of these two consensus mechanism. PoW is a proof mechanism based on workload to realize the data consensus. In Bitcoin system, PoW decides which note has the right to store data and many notes scramble for the only right in ledger. The questions about Hash, Integer factorization, elliptic-curve cryptography need a lot of work without shortcuts, which is the advantage of PoW as well as its shortcoming. It needs a very advanced computing power and the others except the only winner are wasting time and energy. It is not an environmental mechanism. In 2011, in the bitcointalk forum, Quantum Mechanic put forward the PoS. this is a mechanism based on the tokens in system. The more tokens you have, the more power you can have in the system, as well as responsibility and profit. Compared to PoW, PoS can save energy and time for most participants while it is easier for the participants to do manipulation or illegal activities as they have more tokens. Although the process cost in PoS is lower than that in PoW, people prefer PoW which has more value from computing and labor.

The application of both consensus mechanisms is more reliable. All three technologies are meaningful for the decentralized data storage and safety.

In the essence, blockchain related technologies are kind of method enhancing the convincement of technologies rather than the endorsement of government or companies. The problem now is when the trust in blockchain technology can be established in a relatively high level. It is obvious that this period is longer than the period of Internet trust established. The technologies are reliable, but they are controlled and managed by people, and people in society and financial system are working in centralized structure. The centre of banking system is the bank centre, as well as the centre of financial service, and government is the centre of national administration. They share the common that the centres having data from all the notes while the subsidiary notes have their own data, and the data transfers are not public. In another word, centre is everything. The appearance of blockchain technology is a discovery in the decentralization.

4 Decentralization and blockchain applied projects

It is obvious that blockchain can help organizations to have progress in decentralization and many new projects are designed and build in the structure of DAO, which is an organization that can run on its own without having any hierarchical management based on the pre-defined code. The code is in form of contract in which the processes and laws of a decentralized organization are inserted permanently with blockchain technology, and operates through a distributed consensus protocols (Alam, 2018). This is the smart contract which may replace lawyers and banks that have been involved in contracts for asset deals depending on predefined aspects (Fairfield, 2014). More and more industries and fields are applying blockchain technology for a more decentralized management. The most fields deploying blockchain are finance, digital industries, predication, sports, social media, supply chain, content platform, energy, entertainment applications, game, copyright, big data, real estate, E-commerce and so on. The representative projects and their features in decentralization are showed in the following table.

Domain	Projects	Work in decentralization
finance	Digix, Bitwala, Fluent, Digi asset holding, Symbiont, R3CEV	The first change brought by blockchain is in value transaction which is no longer controlled by banks. Other changes about decentralization, such as governance, market, accounting and auditing are more transparent and public.
digital industries	Civic, Bitnation, Cambridge BlockBchain, lockAuth, and Existence ID	Blockchains can ensure that a user's single digital identity is stored in a secure and incorruptible manner. This single digital identity can always be up-to-date with the latest user information.
predication	Stox, Augur,	Using the wisdom of the crowd, combined with their own individual skills and knowledge, people will be able to predict the outcome of events in almost any imaginable category: Finance, sports, politics and even the weather. Blockchain-based data encryption will defend against identity theft. We will be able to choose which data to share with whom, across different transactional channels of commerce and compliance.
sports	SportyGo, Toro Tennis Sponsorship, PlayerTokens , Eventchain, Blockparty, DYNO	The projects in sports industry can decentralize tickets resale and sharing, while allowing for P2P resale. And they can store the data of games, fans, and athletes' drug testing transparently and safely. People can share the information of sports faster and easier.

social media	Sapien, Steemit, Sola, Indorse, onG.social	Those projects make social media more customizable and democratized. The goal is to make more people can communicate and share ideas freely with less restriction from financial reason from media companies or themselves. Creation and ideas are more transparent and accurate.
supply chain	Skuchain, IBM blockchain, TradeLens	Traceability and transparency are the main purpose for these projects to improve with blockchain. The data of shipping and logistics are shared in a ledger that's updated and validated instantaneously with each participant. The results are greater collaboration, streamlined inventory management, improved asset utilization and more.
energy	Grid+, Ondiflo, Radiant Earth	With the distributed ledger technology based on blockchain, it is potential to improve efficiencies for utility providers by tracking the chain of custody for grid materials as well as the increased transparency for stakeholders while not compromising privacy.
entertainment applications	ephelants360, TV-Two, Flixxo, Theta Network	The application of blockchain in entertainment is to build a digital public database that stores an on-going record of transactions, and completely encrypted records of ownership. Artists can create with more protection from the database. And the controls from big entertainment like YouTube will be reduced.
game	Enjin, Komodore64, Loom, Tomochain	Gamers can have a network which allows games to have infinite volumes of transactions at high speeds and almost no cost, and the records are transparent.
copyright	Stem, Custos, Binded Ownership.io	As a distributed and decentralized database (ledger), information of copyright can be recorded safely, where transactions or changes are added to the chain and can be verified by anyone transparently.
big data	Maidsafe, Sia, Storj, FileCoin	The decentralized approach could reduce the costs of storing data. Privacy and security are guaranteed. The distributed database can ensure the safety of data even in a danger.
E-commerce	Loyyal, Simplex, Purse, Openbazzar	In E-commerce projects, payment, supply channels, and market expansion are influenced by blockchain technology. Payment is faster and easier. Customers can find the records of payment and logistics. In market, anyone can provide products to sell legally.

Table 1. The brief analysis of decentralization in blockchain technology applied projects

4.1 Decentralization and blockchain in financial area

As the blockchain technology can solve or mitigate many important problems in financial industry, it has been researched and used most in this area. Blockchain can make a great contribution to decentralization in financial industry in payment, digital currency, banks cooperation and supply chain.

About payment, as blockchain is a distributed ledger, the data of all the value transfer are recorded in all notes in blockchain, which are also transparent for all users. So it has saved much time for long-time and complicated verification. Usually, the big commission for money transfer between countries is caused by the labour fee in complicated verification, and it results in the slow efficiency too. And with the characteristic of being hard to manipulate data, customers and banks are in secure and decen-

tralized trusted interactions. This is the "trustless" value transfer and commodities exchange system. The issue of trust is no longer the big problem in in business and financial activities.

About supply chain, the traditional supply chain is based on data in central server which has the risk to be manipulated or damaged. Blockchain technology can make the data reliable and release the centralized data storage and management. When people can trust the power from all participants rather than the only centre, there is little problem in trust and the verification is simple and reliable. The ledger and invoices can also be digital asset on blockchain, and it is more convenient for companies and tax bureau to check. This is also a good way to reduce the cost in accounting.

There appear more exchanges in legal currency and digital currency. Digital currency or issuance of tokens is the beginning of distributed application with blockchain technology (Van, Dietz, De Filippi, et al., 2014). Bitcoin is regarded as the ancestor of cryptocurrency. It is a cryptocurrency and a form of electronic cash and a decentralized digital currency without a central bank or single administrator that can be sent from user to user on the peer-to-peer bitcoin network without the need for intermediaries. Transactions are verified by network nodes through cryptography and recorded in the public distributed blockchain, which is contributable to the solution of double-spending within a peer-to-peer electronic cash system (Nakamoto, 2008). In early capitalism economy, the value of commodities is a property from their production, but is only actualized in markets through exchange for other commodities. This kind of value is presented by the means of monetary unit (Pazaitis, Filippi, Kostakis, 2017). While in the financial system with blockchain, the monetary unit from government is no longer the only way to realize the value of commodities, and the digital currency can have exchange rate with legal currency to promote the exchange of commodities and to stimulate people's capability to share information and commodities. With comprehensive and complete laws and regulations, these decentralized exchanges can share more justice with customers no matter customers from developed cities or developing areas. The interruption from centralized organization can be mitigated. What's more, the need for profits by labors can be replaced by the normal market needs and rules, which leads to lower labor cost.
Banks are trying best to embrace this new technology and apply more decentralization in work. According to different request in various applications and industries, there are there kinds of blockchains: public blockchain, private blockchain and consortium blockchain. The public blockchain is most decentralized. Now, some banks have built an alliance which is a typical consortium blockchain to make research and development, and to share the good outcomes, such as R3. Some invest in different projects as well as some make experiment with own research team. More public blockchains are appearing with a more decentralized feature. Ethereum is the typical open-source, public distributed computing platform and the operating system featuring smart contract functionality. All the participants can make contribution to its development with new APPs, projects, and have rewards from their contribution. Ether is the token generated by the Ethereum platform. Ether can be transferred between accounts and used to compensate participant mining nodes for computations performed. Ethereum provides a decentralized virtual machine, the Ethereum Virtual Machine (EVM), which can execute scripts using an international network of public nodes.

4.2 Decentralization and blockchain in social media

Crosby et al. (2016) showed the nonfinancial applications could also potentially be supported by the blockchain. Besides the most important domain-financial industry where blockchain tries to have decentralization in a higher level, other fields also have potential of research and application of decentralization. Some of them may not use blockchain technology, but decentralization is the concept they used to improve the service and products. Two examples from Chinese market are put here. One is APP DiDi and the other is Weibo.

The popular APP DiDi is a good example of decentralization compared to the centralized public traffic system around the world. Didi Chuxing Technology Co. is a Chinese transportation network compa-

ny, artificial intelligence (AI) and autonomous technology conglomerate. It provides services including taxi hailing, private car hailing, social ride-sharing, and bike sharing and food delivery to users in China via a smartphone application. When we take a public bus, we have to go to the nearest bus station which is designed by public traffic company, and our destination is not exactly the position where the bus station is. All the data of public traffic is stored in the central service, which is not transparent or comprehensive. APP DiDi has challenged this traditional and centralized process structure. Every customer can become the centre as they can find the service exclusively for them in a period, and they can be picked up and delivered to the exact place. With blockchain technology, all the data is stored in blocks which are customers' computers and phones, which is more transparent and clear.

Sina Weibo is a Chinese microblog website similar to Facebook and Twitter. Launched by Sina Corporation on August 14th, 2009, it is one of the biggest social media platforms in China, with over 445 million monthly active users as of Q3 2018. In this website users can post and send the information about their life. In this situation, everyone is the central and the information is not controlled by traditional media. The traditional central is weakened.
With the idea of decentralization, the new form of governance is implemented based on blockchain technology. Many projects such as Wikipedia and CouchSurfing, are cooperating in decentralized manner for the common goal with contributions from big or small group of participants. People are not restricted to commit the predefined goals which are set by centralized managers or leaders rather to make contributions in different ways to realize the common goal. And the efforts they make are profitable. They can have economic rewards by means of digital currency which can be used in designated projects or exchange for legal currency in legal websites.

5 Discussion

The innovation of blockchain technology has changed the global financial industry as well as many other traditional and centralized industries by means of the decentralized digital leger and digital currency with the outstanding features of transparency and safety. However, as we discussed earlier, the development of decentralization is a long and hard process, which is decided by its features, like the complicated preparation for a comprehensive autonomous implementing and ineffective respond to shifts and dynamics in economic environment. There are some problems we have to understand and some measures can be taken to deal with the problems in practice of decentralization.

5.1 Decentralization challenges decentralization in blockchain projects

The necessary interactions, especially the emotional attachment and care for people should not be replaced or it is very difficult to be replaced by the quantitative and qualitative evaluation system. No matter how smart and advanced the technology system is, it is always impossible for a system to sense and measure the emotional attachment of people interaction and realizes complete autonomous and intelligent management of organizations or other activities. We have to make sure that the decentralization is a tool and a method helping human being to enjoy a more effective and comfortable life, it is not a goal we have to struggle for in neither productivity nor economy.

Some organizations or companies with goal of decentralization do not have enough resources and fund to become real self-sustainable and cannot operate in a big and vast scale. According to the original design, all the participants should have shared common goal and contribute to the organization autonomously. While the reality is that most people still work on an ad hoc basis like incomes (Fuster Morell et al., 2014). Then the organizations with the original goal of decentralization have to become a more rigid hierarchical structure with a market-oriental approach willingly or not. They have to emphasize the reward for contributions and use more rewards to attract participants, which is focused on the central purpose of managers rather than the decentralized management which participants take part in with the common goal. The change of CouchSurfing is an example to show this kind of tendency

that from a non-profit and decentralized organization to a profitable company. And because of the shift, more participants lose confidence in it and the original decentralization design comes to the end (Bauwens, 2011).

When we mention blockchain technology, the first idea is always the decentralization which makes sure the highly consensus with its consensus mechanism. While the hacking security incidents without effective solutions make people worry about its future. How to make security and consensus achieve a most balance is the first question we have to consider. In the perspective of practice, consensus and efficiency is a pair of conflict. When we only concentrate on decentralization, the efficiency of blockchain projects are not easy to improve at the same time. The process of practice of decentralization is a long and challenging way, people are easy to give it up when facing the choice of efficiency and profit which are the main force of economy and business.

With the influence from tradition and fixed economy and production way, people are not happy even afraid to accept a new technology with new goal of decentralization. When a person is told that banks are no longer needed in money transfer as all the data is recorded in all computers in the world, the person may refuse to believe this technology. Because banks and traditional financial organizations have built very strong trust, it is not easy to change mind so fast. Just as the appearance and development of internet at very beginning, few people can imagine the life decades after the birth of internet.

5.2 Suggestions for practice of decentralization with blockchain technology

The real purpose of decentralization is to improve the efficiency of an organization and promote the productivity, and this goal can be realized through the following procedures:

To have a comprehensive and complete evaluation system for products, services and projects. When initiate a new project, the demands analysis, difficulty analysis, workload analysis should be included for a better estimation. The result of analysis should be public to all staffs and ask for a profound evaluation from all employees in blockchain. This way can help more employees participate in project management and stimulate their enthusiasm. Blockchain technology can make sure the data is transparent and reliable. For project or new product, it is also a good way to get better analysis and estimation.

To establish human resources pool with blockchain technology and the data are available for all the staffs in project, and according to the professions and advantages from employees to set up human resource pool matrix. The decentralized autonomous management system can find the suitable managers and employees in a short time based on the projects or products requests, the human resource pool matrix, and the application sequence.

According to the request and difference of projects, the system can automatically select the suitable staffs from human resource pool matrix. The produced new job will be added to employee's work schedule. If the selected employee by autonomous system doesn't want to join the new project, the new job can be rejected and system selects new ones from the following candidates based on work and efficiency principles.

When all the members are selected and form the new project group, the work evaluation is important. The project implementation quality index can be uprated and developed with the input of every day data about work in every aspect by project members. These data include attendance, process report, solved problems, problems to be solved, and so on. System can produce daily report based on all the data and information focused on different aspects which all the project members can read on blockchain. The reports based on the work process and result can effectively promote project and project members.

System can count other contributions for project and transform to scores in evaluation. All the reasons for extra points should be public and agreed by most members. These procedures are useful for the quality of project and the equal evaluation of project members.

This evaluation system based on blockchain technology can make decentralization have its functions in work efficiency and quality. Members in projects can enjoy their strength and advantages. All the contributions can be qualification and showed in public numbers. It is a good way for project members to study from others and clear the next direction of project, and improve efficiency. Besides, the autonomous system can make evaluation avoiding subjective justification and eliminate the negative influence from small group.
The concept of decentralization and blockchain technology can facilitate distributed systems to scale and become viable, but the genuine dynamics of sharing and the underlying human sociality are should not be ignored in this world. So a high duty for an interdisciplinary and inclusive approach, social sciences, as well as philosophy and ethics are indispensable to consider avoiding getting locked in narrow theoretical and empirical perspectives (Pazaitis, Filippi, Kostakis, 2017).

6 Conclusion

The main motivation of this article is to explore the development and practice of decentralization in modern society with the influence from blockchain technology. At first, this article focuses on the concept of decentralization in context of history. In the ancient period, plants are considered as the earliest carrier and platform of decentralization in order to survive from the cruel environment and competition with animals. While animals chose the centralization to have rapid responds to external danger. The choice of decentralization makes plants can live longer even some parts are damaged together with the weakness of slow development. Form plants, we can know that the process of decentralization application is a long and challenging way. And the decentralization nowadays we discussed a lot has appeared long time ago and in the form of diversity. Decentralization in management, economics, and cryptographic currency is a new way to utilize and embody. And in human beings' history, the fight from most population against to the ruling group shows the everlasting conflict of decentralization and centralization in society. In this way, democracy and freedom are taken as the decentralization, while feudalism and autocracy are regarded as the centralization. What we have to understand is that both have their advantages to promote the development of society and economy in different period. When one shows its weakness, it is easier for people to find the goodness of the other and do more work for it. When feudalism was founded, it was advanced for society and economy.

Then the article goes to the theoretical inquiry in the concept of decentralization in this information age and blockchain technology. With the difference of the number of physical computers and notes in blockchain, numbers of individuals or organizations managing notes, and the numbers of interface and data structure, decentralization in internet world is divided into three kinds, but generally speaking user becomes an internet note and connects to others equally without the control from centre. Blockchain technology makes decentralization more practical can useful with its cryptographic algorithm, peer-to-peer communication technology, and distributed consensus technology as well as the characteristics including trustless, transparency and safety. Because blockchain technology has the effects in solving problems in financial service, this area becomes the first and most important area for the research and application of this technology. Several domains of finance including payments, supply chains, banks cooperation, and digital currency, have been invested a lot to research the application of blockchain. And the future of blockchain in finance is quite promising. Actually not only financial system has been changed, many other industries, such as social media, entertainment, and data storage. Decentralization can be showed in many projects in various industries and areas. More and more projects are working with blockchain technology and the concept of decentralization. It is believed that blockchain will help them have an efficient management and operating system.

Then the article shows some problems we have to pay attention during the practice of decentralization with blockchain. The necessary interactions related to emotional attachment and cares are not easy to be quantified in decentralized evaluation system. The initial purpose to share the common goal in a decentralized project may be replaced or influenced by commercial reasons. The long and slow development of decentralization is hard, and the cultural and historical factors make people spend more time to accept new system of decentralization. Towards decentralized management, some suggestions are given for reference, and other interdisciplinary and inclusive ideas more than decentralization and blockchain technology are necessary to consider. Decentralization can be showed in complicated and diverse forms, and blockchain has made it more practical in management and economics. It is too early to predicate how the society will become with blockchain now, but the changes always make society better.

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